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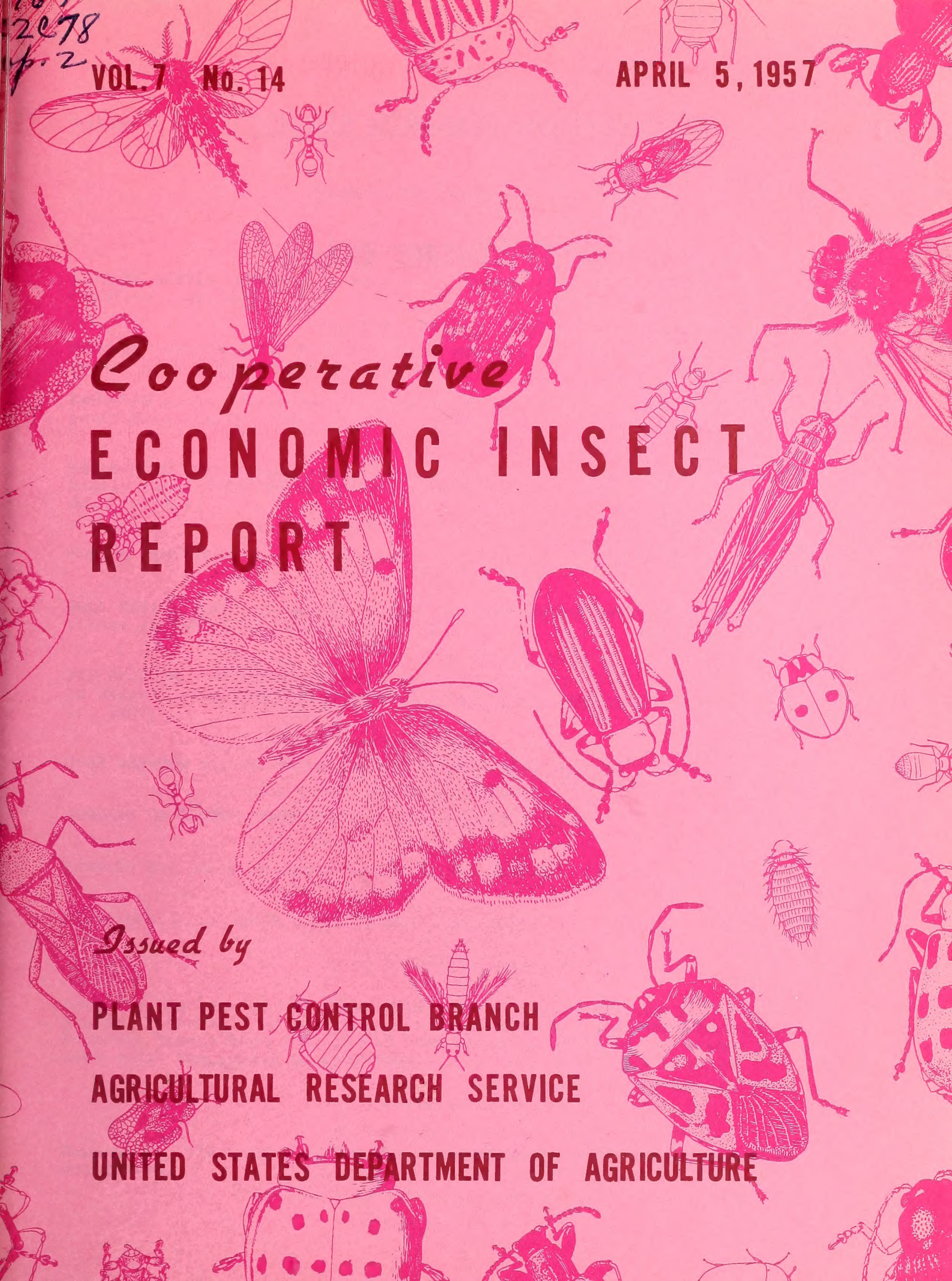

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL BRANCH
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Plant Pest Survey Section
Plant Pest Control Branch
Agricultural Research Service
United States Department of Agriculture
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Volume 7 April 5, 1957 Number 14

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

ALFALFA WEEVIL hatching in Maryland. Damage continues in Virginia and North Carolina. (p. 251).

SPOTTED ALFALFA APHID building up in several New Mexico counties but other States report only light activity. (p. 251).

ARMYWORM moths active as far north as Maryland; larval damage in Beaufort County, South Carolina.(p. 252).

RED-BANDED LEAF ROLLER eggs at Vincennes, Indiana; APPLE APHIDS hatching in Pennsylvania; PEAR PSYLLA ovipositing in areas of Washington and Oregon, March 20. (p. 253).

TOMATO FRUITWORM heavy on tomatoes in lower Rio Grande Valley, Texas. (p. 254).

BOLL WEEVIL survival counts in Georgia show largest number of weevils surviving winter in that State since 1953. (p. 257).

NEW RECORDS: Sweetclover aphid in Louisiana. (p. 251). Two new conifer aphids in Oregon. (p. 255). A dermestid (Thylodrias contractus) reported from California. (p. 255).

CORN EARWORM survey technique and loss to dent corn in 1956 in Indiana. (p. 258).

SUMMARY OF INSECT CONDITIONS - 1956 - in Libya. (p. 260).

INSECTS not known to occur in the United States. (p. 262).

Distribution of RANGE GRASSHOPPERS. (p. 263).

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Recently the name of the Plant Pest Control Branch was changed to Plant Pest Control Division. In interest of economy the covers of the Cooperative Economic Insect Report which had been prepared prior to the change will be used until the supply is exhausted.

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Reports in this issue are for the week ending March 29 unless otherwise designated.

WEATHER BUREAU'S 30-DAY OUTLOOK

APRIL 1957

The Weather Bureau's 30-day outlook for April calls for temperatures to average below seasonal normals over central and western portions of the nation, except for near to above normal in the northern border and west coast states. Over the eastern third of the country near normal averages are in prospect.

Precipitation is expected to exceed normal over the southern half of the country from the Rocky Mountain States eastward to the Atlantic Seaboard. Subnormal amounts are indicated for the West Coast States and upper Great Lakes. Elsewhere near normal precipitation is anticipated.

Weather forecast given here is based on the official 30-day "Resume and Outlook," published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D.C. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING APRIL 1

The storm center which at the end of last period whipped snows into depths of 20 feet or more in central portions of the Country, moved out over the Middle Atlantic States on Wednesday with considerably less force. Preliminary reports on livestock loss in connection with this storm indicate loss of 1,000 cattle, 600 sheep, and 100 pigs in the Oklahoma panhandle; loss of cattle particularly heavy in Dallam and Sherman Counties of Texas; heavy loss of livestock in northeastern New Mexico; loss of a few calves in southwestern Nebraska, but no abnormal livestock losses elsewhere in the State; and the loss greatest to calves and lambs in northeastern Colorado and west-central and southwest Kansas. The main events of this week's weather were associated primarily with low pressure disturbances. Two of these developed over Texas to bring substantial moisture to eastern portions of the State, and other sections of the drought area northward through Kansas and Missouri. Another low center passed slowly north of the Great Lakes region, and one moving in from the northwest converged with a storm center developing in the southern Rockies. The latter accompanied by heavy snowfalls has already extended its influence from Montana to New Mexico, and in eastern Colorado had deposited 8 inches of snow near Colorado Springs by Tuesday morning. Heavy rains, destructive hail, excessive winds, and several tornadoes occurred in the area extending from eastern Texas and Oklahoma into Louisiana and eastward to southern Georgia and northern Florida on Sunday and Monday. Over 3 inches of rain in 12 hours caused local flooding at Pawhuska, Okla., on the 31st, while in Florida on the 1st 4.38 inches fell in 6 hours at Pensacola and 2.50 inches in less than an hour at Apalachicola. Winds reached gusts of 50 m.p.h., at Birmingham, Ala., and at Anniston in the same State a hangar and 9 aircraft were destroyed. Tornadoes were reported at Huntsville and Austin in Texas, and another at McComb, Miss., and on Thursday 1 inch hail covered the ground at Robson, La. Weekly precipitation totals were moderate to heavy in the extreme Northwest, the Gulf States, eastern portions of the southern Plains, the middle Mississippi Valley, and the southern Lakes region, while little or no precipitation fell in the extreme Southwest, the North Central States, and eastern New England. In northern Missouri many places reported more precipitation this week than the combined totals received in the 3 months from December to February. Temperatures for the week averaged near to below normal in the central and southern Plain States, east of Mississippi, and in Washington and adjoining portions of Oregon and Idaho. In the intervening area departures for the week were slightly above normal. Greatest departures, generally -6° or more, were observed in the southern Plains and isolated locations of the Southeast. Most of the snow deposited in last week's storm had melted by Thursday at lower elevations, and by Monday snow cover was limited to extreme northern portions of Minnesota, Wisconsin, Michigan and New England, (continued on page 252).

CEREAL AND FORAGE INSECTS

GREENBUG (*Toxoptera graminum*) - OKLAHOMA - Scattered, light populations in Tulsa and Rogers Counties. Heaviest numbers in barley field near Tulsa which averaged 45 aphids per linear foot of row. Very light numbers in few fields in Mayes and Craig Counties. Winged and non-winged forms present. (Coppock).

WINTER GRAIN MITE (*Penthaleus major*) - OKLAHOMA - Populations in small grains in northeastern counties light and scattered. Extensive rains reduced numbers. (Coppock).

GRASSHOPPERS - CALIFORNIA - Grasshopper nymphs principally *Oedaleonotus enigma*, appearing in Avenal area. Up to 5 egg pods per square foot in this area. (Cal. Coop. Rept.).

CUTWORMS - WASHINGTON - Larvae becoming active and causing heavy damage to some fields of Merion bluegrass and other seed grasses in Spokane County. Species mostly *Crymodes devastator* in complex with *Crambus topiarius*. Diseases apparently destroyed some heavier populations last fall. (Harwood). OREGON - *C. devastator* damaging fescue seed fields in Marion County. (Crowell). CALIFORNIA - Light infestation of *Peridroma margaritosa* in alfalfa field in Shasta County. (Cal. Coop. Rept., Mar. 22). UTAH - *Chorizagrotis auxiliaris* less conspicuous than usual in Sanpete, Wayne and Sevier Counties. (Knowlton). TEXAS - *C. auxiliaris* very light on vetch and oats in Kaufman and Van Zandt Counties. (Randolph). OKLAHOMA - Light populations of *C. auxiliaris* in alfalfa in Washita County. (Hudson).

APHIDS - ARIZONA - Moderate numbers on barley in Maricopa County with occasional heavy infestations. (Ariz. Coop. Rept.). NEW MEXICO - Heavy populations building up on Bermuda grass lawns in Las Cruces. (Durkin).

STINK BUGS - ARIZONA - Fairly heavy populations in 40 acres of barley in Harquahala Valley, Maricopa County. Unusual for time of year. (Ariz. Coop. Rept.).

A SAWFLY (*Pachynematus sporax*) - CALIFORNIA - First eggs and larvae of season taken near Cuyama, Santa Barbara County. (Cal. Coop. Rept., March 22).

SUGAR-BEET WIREWORM (*Limonius californicus*) - WASHINGTON - Larvae near soil surface and active in wheat fields near Pullman. (Harwood).

SPOTTED ALFALFA APHID - TEXAS - Light infestation in alfalfa in Kaufman County. (Hawkins). OKLAHOMA - Averaged one per stem in alfalfa field in Payne County. (Stiles). Increasing slightly in Washita County. (Hudson). None found in Creek, Tulsa and Rogers Counties. (Coppock). LOUISIANA - Very light infestations in Red River and Bossier Parishes. (Oliver). MISSOURI - Apparently did not overwinter successfully in southern half of State. Very improbable sufficient numbers present to cause severe damage to seedling alfalfa in northern area this spring. (Thomas, Kyd). NEW MEXICO - Building up in Lea, Eddy, Quay, Socorro, Otero and San Miguel Counties. Infestations in Dona Ana County are light and spotty. (Durkin).

SWEETCLOVER APHID (*Myzocallidium riehmi*) - LOUISIANA - Collected in sweetclover in East Baton Rouge Parish. First record in the State. (Oliver).

PEA APHID (*Macrosiphum pisi*) - TEXAS - Light infestations, 2 per 10 sweeps on alfalfa and vetch in Kaufman County. (Hawkins, Randolph). VIRGINIA - Counts in alfalfa ranged from 2 to 16 per sweep in several southeastern counties. (Morris). MARYLAND - Averaged from 1 to 4 per sweep on alfalfa in Worcester, Somerset and Talbot Counties. (U. Md., Ent. Dept.).

ALFALFA WEEVIL (*Hypera postica*) - IDAHO - Adults general throughout Ada, Canyon and Owyhee Counties. Feeding light and spotted. No egg laying noted. (Portman).

UTAH - Control in many counties (Knowlton). NORTH CAROLINA - Found for first time in Edgecombe, Wilson, Rowan and Guilford Counties on east and west fringes of known distribution. Commercial liquid nitrogen equipment being utilized for distribution of insecticide. (Dogger, Jones, Smith, Hanson). VIRGINIA - Hatching in all parts of State with larval damage to alfalfa ranging from light to heavy on individual field basis. Damage is heavy some fields and light to medium other fields in same counties. In general, infestations and damage heaviest in counties along southern border. (Morris et al.). MARYLAND - Eggs hatching in Montgomery and Prince Georges Counties. Adults averaged 4 per 100 sweeps in Montgomery, Talbot, Worcester and Somerset Counties. (U. Md., Ent. Dept.).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - IDAHO - General throughout alfalfa in southwestern Idaho. (Portman).

LYGUS BUGS - TEXAS - Medium infestation on vetch in Kaufman County. (Randolph).

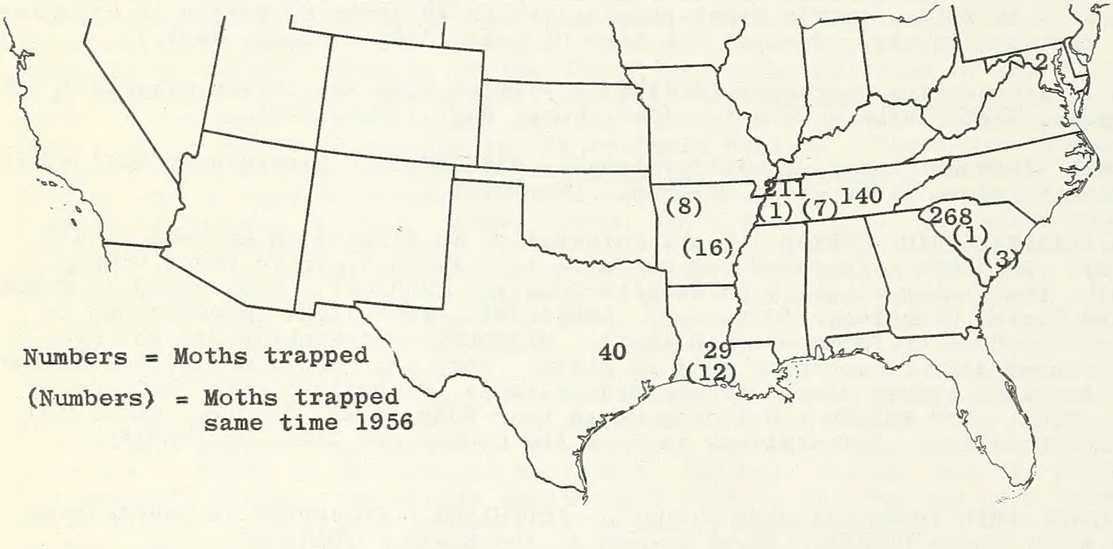
THRIPS - NEW MEXICO - *Frankliniella* spp. and *Thrips tabaci* abundant in alfalfa in Dona Ana County. (Durkin).

LEAFHOPPERS (*Empoasca* spp.) LOUISIANA - Infesting alfalfa at 50 to 100 sweeps in Red River and Bossier Parishes. (Oliver).

VETCH BRUCHID (*Bruchus brachialis*) - TEXAS - Two swept from vetch fields in Van Zandt County. (Randolph).

ARMYWORM (*Pseudaletia unipuncta*) - SOUTH CAROLINA - Moderate damage to oats in Beaufort County on March 14. First damage to small grain this season. (Johnson, Nettles).

Armyworm as Reported Week Ending 3/29



Continued from page 250.
and at higher elevations in the far west where Mount Baker Lodge, Wash., reports 198 inches; Odell Lake, Oreg., 58 inches; King's Hill, Mont., 53 inches; Crested Butte, Colo., 67 inches; and Twin Lakes, Calif., 61 inches. From South Dakota comes the report that ice broke on the James River at Huron this week, and that the Big Sioux near Alcester was bank full for the first time in 2 years. Ice jams were reported on the Mississippi at Anoka, Minn., and navigation is open at St. Paul and Minneapolis. Ice thickness reports this week include 14 inches at Green Bay, Wisc., 19 inches at Escanaba, Mich., 13 inches at Duluth, Minn., and 31 at Greenville, Maine. (Summary Supplied by U. S. Weather Bureau).

FRUIT INSECTS

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - INDIANA - First egg mass of season in Vincennes area found March 25. (Cleveland).

PEAR PSYLLA (*Psylla pyricola*) - WASHINGTON - Became active in orchards at Wenatchee February 14. Egg laying noted March 19. (O'Neill). OREGON - First eggs hatched on pear trees in Jackson County on March 20. (Gentner).

EYE-SPOTTED BUD MOTH (*Spilonota ocellana*) - OREGON - Larvae feeding on prune buds in Willamette Valley on March 26. (Jones).

PEAR THRIPS (*Taeniothrips inconsequens*) - OREGON - Reaching height of emergence at Forest Grove in mid-March. Began to appear March 25 in Benton County. Reached peak emergence in Willamette Valley week of March 24-30. Slightly more abundant than in 1956 with emergence peak approximately same date. Control substantially reduced previous much higher counts. (Jones).

TARNISHED PLANT BUGS (*Lygus lineolaris*) - INDIANA - Eleven bumped from three peach trees one location in Vincennes area. (Cleveland).

APHIDS - VIRGINIA - Eggs of *Anuraphis roseus* and *Myzus persicae* hatching. Aphids attacking apple buds in central and eastern orchards. Infestation medium (Bobb). PENNSYLVANIA - *Rhopalosiphum fitchii* and *Aphis pomi* hatching on apple in southeast and south central areas. Apples almost in green tip. (Menusan, Pepper).

PEACH SILVER MITE (*Vasates cornutus*) - WASHINGTON - Winter deutogynes abundant and depositing eggs on peach and nectarine buds in number of orchards in Jackson County March 19. (Gentner).

CLOVER MITE (*Bryobia praetiosa*) - OREGON - First eggs hatched on peach trees in Jackson County on March 27. (Gentner). NEW MEXICO - Eggs are abundant on fruit trees in Rio Arriba, San Juan, Sandoval, Bernalillo, Valencia and Lincoln Counties. (Durkin). INDIANA - Active in neglected apple orchard in Vincennes area. (Cleveland).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - CALIFORNIA - Total of 2,967 traps in operation end of February. Results negative. (Cal. Coop. Report).

CITRUS THRIPS (*Scirtothrips citri*) - ARIZONA - Populations developing in Maricopa County but peak not yet reached. (Ariz. Coop. Rept.).

PECAN NUT CASEBEARER (*Acrobasis caryae*) - OKLAHOMA - Inspection of 200 pecan branch tips in Tulsa County for overwintering hibernacula was negative. (Coppock).

Citrus Insect Situation, Lake Alfred, Florida: PURPLE SCALE increased and will continue to increase until peak of present hatch reached by first or second week in April. FLORIDA RED SCALE activity increased but will decline. CITRUS RED MITE activity declined with some further reduction expected. CITRUS RUST MITE activity declined with further reduction unless considerable rainy weather. APHIDS increased and are near peak. SIX-SPOTTED MITE infestations will start increasing about April 15 but heavy infestations will be rare. (Pratt, Thompson, Johnson; Mar. 22).

RASPBERRY ROOT BORER (*Bembecia marginata*) - OREGON - Causing serious damage to 30 acres of blackberries near Salem and injuring raspberry plantings in Lebanon on March 18. (Stephenson). PENNSYLVANIA - Five percent of raspberry in Bradford County infested by grubs. (Gesell).

SPIDER MITES - WASHINGTON - Great numbers overwintering females of *Eotetranychus willamettei* laying eggs on raspberry canes and posts in field. (Breakey, Freiman). NEW MEXICO - *Tetranychus mcdanieli* numerous at bases of apple trees in Sandoval, San Juan and Bernalillo Counties. (Durkin).

TRUCK CROP INSECTS

GREEN PEACH APHID (Myzus persicae) - OREGON - Hatching March 11 at The Dalles. Numerous eggs still unhatches on March 19. (Ellertson). ARIZONA - General on vegetables and ornamentals in Salt River Valley. (Ariz. Coop. Rept.). OKLAHOMA - Three spinach fields in Tulsa County negative. (Coppock).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - VIRGINIA - Larvae very heavy and feeding on turnip foliage at locality in Brunswick County. (Basham).

CUTWORMS - SOUTH CAROLINA - Large numbers present in Charleston County. Threatening tomatoes. (Nettles et al.).

TOMATO FRUITWORM (Heliothis zea) - TEXAS - Heavy infestation in all tomato fields in lower Rio Grande Valley and causing considerable amount of damage to flower buds, stems and leaves. (Wene, Deer).

CABBAGE APHID (Brevicoryne brassicae) - TEXAS - Problem in few remaining cabbage fields in lower Rio Grande Valley. (Wene, Deer).

CATERPILLARS - ARIZONA - Low on lettuce in Salt River Valley. (Ariz. Coop. Rept.).

SPIDER MITES - LOUISIANA- Heavy infestations of strawberry foliage by Tetranychus telarius and T. lobosus throughout strawberry belt, especially in Tangipahoa Parish. (Oliver). NEW JERSEY - Very heavy in two strawberry plantings near Hammonton. (Ins.-Dis. News.).

ROSE SCALE (Aulacaspis rosae) - MARYLAND - Heavy on raspberry canes, Mount Savage, Allegany County. (U. Md.,Ent. Dept.).

TOBACCO INSECTS

VARIEGATED CUTWORM (Peridroma margaritosa) - FLORIDA - Larvae averaged 25 per 100 linear feet in row shade tobacco at Quincy, Gadsden County. Situation worse this year than in 1956. (May, Mar. 26).

COTTON INSECTS

Cotton Insect Situation, lower Rio Grande Valley, Texas: APHIDS increasing and becoming more widespread. Few fields required THRIPS control. Light to moderate CUTWORM damage occurred in fields west of Raymondville and near Rio Hondo. BOLLWORMS feeding in terminals of young cotton near Mission and between San Benito and Los Fresnos. (Deer).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS - UTAH - Common in number of counties. Spotted control. (Knowlton). OKLAHOMA - Heel flies active in Canadian and Payne Counties. (Stevens).

SHEEP KED (Melophagus ovinus) - UTAH - Control will start on more than 75,000 head when shearing begins in Sanpete County compared with that many or more in 1956. (Knowlton, Funk).

CATTLE LICE - UTAH - Serious problem in beef cattle herds in several counties. Many dipped recently. (Knowlton).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE BARK APHID (*Pineus strobi*) - PENNSYLVANIA - Infestation on Scotch pine plantation in Westmoreland County. (Udine).

PINE NEEDLE SCALE (*Phenacaspis pinifoliae*) - PENNSYLVANIA - Moderate infestation on lower half of twelve foot Scotch pine trees in Centre County. (Adams).

A TWIG BORER - MISSISSIPPI - Young overwintering larvae infesting young cottonwoods in terminal and lateral branch tips at 3 or more per foot of twig. A 20 inch terminal was infested by 15 larvae. A twenty acre plantation of cottonwood cuttings planted in February in Washington County seriously injured in August and September 1956. (Morris).

OYSTERSHELL SCALE (*Lepidosaphes ulmi*) - UTAH - Extremely heavy on several hundred ash in Manti. Trees severely damaged also at Ephraim. (Knowlton, Funk).

APHIDS - OREGON - Two new species feeding on conifers in State. *Cinara gentneri* collected on *Abies grandis*, Union Creek, Jackson County, September 21 and October 15, 1956; and *Cinara schuhi*, collected on *A. concolor* in Klamath County, August 12, 1956. Descriptions by F. C. Hottes. (Gentner, Schuh).

DOUGLAS-FIR TUSSOCK MOTH (*Hemerocampa pseudotsugata*) - IDAHO - Two small infestations discovered in tree farms in Clearwater County. (Terrell).

HOLLY LEAF MINER (*Phytomyza ilicis*) - OREGON - Larvae 80 percent pupated on holly in Portland on March 22. (Goeden).

JUNIPER WEBWORM (*Dichomeris marginella*) - OREGON - Damaging ornamental juniper at nursery near Applegate March 14. (Larson)

WHITE-FRINGED BEETLES(*Graphognathus* spp.) - TEXAS - Inspections of 37 nurseries in Harris County negative. (Ellard).

A HOLLY LEAF MINER (*Phytomyza* sp.)- NORTH CAROLINA - Fifty percent of leaf area on a holly destroyed in Forsyth County. (Jones, Farrier).

EUONYMUS SCALE (*Unaspis euonymi*) - VIRGINIA - Heavy some euonymus plants at Graigsville (Amos), and light some plants at Lexington (Rowell, Jackson). MARYLAND - Heavy on euonymus, Takoma Park, Montgomery County. (U. Md., Ent. Dept.).

SCALES - SOUTH CAROLINA - Several species including *Icerya purchasi* very serious on ornamentals in Beaufort. (Beaufort Hort. Soc.)

ROSE APHID (*Macrosiphum rosae*) - NEW MEXICO - Light to heavy on roses throughout State. (Durkin).

A FALSE SPIDER MITE (*Tenuipalpus pacificus*) - CALIFORNIA - Heavy infestation on Vanda orchids in San Mateo County. Previously reported from greenhouses near San Leandro in 1948 and 1949 on mothorchid. (Cal. Coop. Rept., Mar. 22).

STORED PRODUCTS INSECTS

A DERMESTID (*Thylodrias contractus*) - CALIFORNIA - Collected in cornmeal in U. S. Dept. Agric. warehouse in San Ysidro, San Diego County. As far as known first reported from State. (Cal. Coop. Rept., March 22).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - FLORIDA - Averaging 1 mound per acre of 120 inspected at Paxton, Walton County. (Dickinson, Feb. 15).

TEXAS LEAF-CUTTING ANT (*Atta texana*) - TEXAS - Several active colonies in Hardin, Newton, Jasper, Polk, Tyler and San Jacinto Counties. Control measures being applied. (Turney).

CLOVER MITE (*Bryobia praetiosa*) - NEW MEXICO - Infesting homes in many areas throughout the State. (Durkin).

A LADY BEETLE (*Adalia bipunctata*) - CONNECTICUT - Lady beetles, principally this species, now emerging from hibernation and of concern to householders. Unusually high numbers entered homes last fall. (Johnson, April 1).

WAX MOTH - UTAH - Severely damaged stored honey bee combs at Loa. (Knowlton).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agro. yps.	Prod. orn.	Perid. marg.	Feltia subt.	Hel. zea	Tri. ni	Laphy. frug.
TEXAS								
College Station 3/23-29	40	3	2	3	1			
Brownsville 3/17-23	4	1			47	57	80	58
LOUISIANA								
Curtis 3/6-26	202	204		70	8	3		
Baton Rouge 3/22-29	7	29	18	10	29	5	1	2
Franklin 3/11-27	1	6	11	2	16		2	4
TENNESSEE (Counties)								
Lauderdale 3/19-25	211	21	1	5				
Madison	32	3		4				
Lawrence	25	2						
Maury	58	4	1	3				
Robertson	5	3	1					
Cumberland	10	2	2	2				
Knox	13	4	2	7				
Green	9	4		3				
Blount	1	1		1				
Monroe	140	33	3	4				
Johnson	5	1						
FLORIDA								
Gainesville 3/20		2			12			
Homestead 3/19					17	2		
Sanford 3/21						3		
Monticello 3/26					10			
Quincy 3/25		1			4	2		
SOUTH CAROLINA (Counties)								
Florence 3/16-22	81	15	5	6	7			
Charleston 3/11-17	12	3		6	19			
Oconee 3/23-29	268	15	1	7	1			
MARYLAND (County)								
Montgomery	2			2				

Light Trap Catches at Norfolk, Virginia, 1956:

The first CORN EARWORM (*Heliothis zea*) moth was taken May 4. The value of light trap collections in predicting insect outbreaks was clearly indicated by a count of 9 moths August 9 compared with 334 moths only 6 days later on August 15. Local growers were warned to be alert for heavy earworm infestations about August 25. This information was also sent to the Virginia Insect Pest Survey and Report Service.

ARMYWORM (Pseudaletia unipuncta) moths were first taken May 7. Field infestations of armyworm were reported about 10 days later. Infestations were lighter than usual which was to be expected from the small trap catch, which averaged less than 10 per night throughout the critical May period. Moths were collected regularly throughout the growing season in numbers sufficient to be of economic importance, reaching a peak of 141 on September 19. Apparently there are larger numbers in the area throughout the season than was realized and damage is not limited to May and June. FALL ARMYWORM (Laphygma frugiperda) moths appeared July 31, which was later than for some years. In the past rather heavy infestations had been noted early in July; such as in 1948. Light trap catches did not show any high peaks until September 6 when 298 moths were collected as compared to 48 moths the preceding night. Field infestations correlated nicely with trap catches in that the pest was unusually light, except in late September. YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) moths were first trapped June 8. While never as numerous as the armyworm or corn earworm at their peaks, yellow-striped armyworm moth catches were consistent throughout the summer and fall. Field observation indicated that larvae were present throughout the growing season and caused considerable damage to tomato, pepper and the cole crops at times. HORNWORMS - The tobacco hornworm was somewhat more numerous than the tomato hornworm in 1956. Sex ratios were not taken regularly, but practically all of the tomato hornworm moths were females and practically all the tobacco hornworm moths were males. (Hofmaster, Brubaker).

ADDITIONAL NOTES

Boll Weevil Survival Counts in Georgia: Spring examinations of surface trash from woods adjacent to old cotton fields, to determine the number of boll weevils surviving the winter, were made in four regions in Georgia from March 11 to March 21, 1957. The average for the State was 1,036 live weevils per acre of surface trash. This compares with 390 weevils one year ago. Based on the number of weevils found during the fall and comparing with the spring count, the winter survival for the State was 54 percent. Twenty-nine of the 50 fields examined or 58 percent, were infested. Five samples of two square yards each were taken from each of the fields. The maximum number of weevils per acre from one field was 13,068. The averages for the different areas where samples were collected were as follows: northwest (Gordon County) 1,016; north central (Spalding, Butts, Pike, Henry and Lamar Counties) 1,718; east central (Burke County) 290; and south (Tift County) 436. (Beckham et al.). This is the largest average number of weevils surviving the winter since the spring of 1953. (Jordan).

CALIFORNIA - TWO-SPOTTED SPIDER MITE building up to damaging numbers on young strawberry plants and STRAWBERRY APHID infestations light in Orange County. Inspection in Monterey County indicates first spring generation of LEAF MINERS completed in early spinach. Insect principally in the pupal stage in later fields. No serious damage. SUGAR-BEET WIREWORM is destroying many young cabbage plants in former orange grove in Orange County which received no soil treatments. CABBAGE LOOPER numerous in cabbage field at Indio, Coachella Valley. In coastal areas, loopers are scarce. CABBAGE APHID, infesting 50 percent of cabbage plants some young fields in Orange County. Turnips in Los Angeles County, light infestation only. (Campbell).

INDIANA CORN EARWORM SURVEY TECHNIQUE, INFESTATION, AND LOSS TO DENT CORN IN 1956

Reported by M. C. Wilson, G. E. Gould, R. T. Everly,
and D. L. Schuder

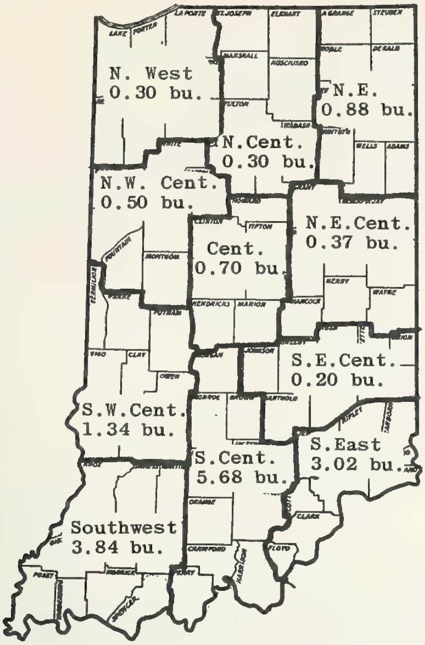
For several years entomologists in Indiana have been attempting to obtain an estimate of the fall infestation and damage of the corn earworm to dent corn. This has been done by making an earworm survey along with the annual corn borer survey.

Methods: Considering the amount of time and budget that could be allocated to a survey, it was decided that a maximum of 200 fields could be sampled in the state. The sampling sites were selected as follows. The State of Indiana was divided into 11 regions depending upon location and soil types. Each region consisted of seven to ten counties. The 200 sampling sites were then divided among the regions proportionately according to the corn acreage. In this way the northwest central region consisting of seven counties with the highest corn acreage was apportioned 25 sampling sites while the southeast region also consisting of seven counties had only seven sampling sites due to its much lower corn acreage.

Sampling sites were predetermined in each region and marked on a map so that the entomologists making the survey obtained the sample by driving directly to the location and sampling the corn field nearest to the site. In predetermining the sampling sites an attempt was made to proportion the fields accordingly in areas of muck, loam, and sandy soil types.

Fields were sampled by walking 50 paces into the field and then examining the ears of 25 consecutive plants. Any ear that had been damaged by the earworm whether the insect was still present or not was considered infested. The first two infested ears were removed and the number of destroyed kernels on each ear counted. Allowances were made for small kernels near the terminal end of the ear that might not be expected to develop under normal conditions. The data from these two ears were averaged and a percentage loss calculated based upon the average total number of kernels per ear from two representative uninfested ears selected from the field. There was very little variation in the number of kernels per ear in a variety in a field. Regional data were determined by averaging all fields in the district.

Corn Earworm Survey Regions



Figures = per acre loss.

Results: The results of the Indiana corn earworm survey are shown in the table. The number of fields sampled, the percent infestation, and losses in terms of percent of crop, bushels per acre, total bushels, and dollars are shown for each region. Regional locations are shown on the map.

Although the survey data indicate a loss of $9,837,568 to dent corn from earworm infestation in Indiana in 1956, the percent crop loss for the State was only 2.69 percent or 1.7 bushels per acre. The cost and unreliability of earworm control makes insecticide application to dent corn economically not feasible with the possible exception of some of the southernmost parts of Indiana.

1956 Corn Earworm Infestation and Loss to Dent Corn in Indiana

Region	No. of Fields Sampled	Percent Infested Ears	Percent Crop Loss	Bushels Per Acre Loss	Total Bushels Loss	Total Dollars Loss
Northwest	21	34	0.79	0.30	237,900	$ 285,480
North central	21	25	0.58	0.30	189,158	226,989
Northeast	20	42	2.00	0.88	628,307	753,968
Northwest central	25	42	0.98	0.50	386,892	464,270
Central	19	40	0.83	0.70	238,947	286,736
Northeast central	23	50	1.41	0.37	465,976	559,170
Southwest central	15	53	3.05	1.34	487,112	586,934
Southeast central	18	18	0.49	0.20	137,451	164,941
Southwest	20	79	7.64	3.84	2,531,316	3,037,580
South central	11	82	11.15	5.68	2,222,625	2,667,150
Southeast	7	85	6.49	3.04	670,292	804,350
State Total (Wt'd)	200	48	2.69	1.71	8,195,976	$9,837,568

1956 Indiana corn yield: 296,546,000 bushels
Loss based on $1.20 per bushel, average November - December price of corn.

SUMMARY OF INSECT CONDITIONS - 1956

LIBYA

Compiled by Arthur Kaatz

Cereal & Forage Insects: DESERT LOCUST (Schistocerca gregaria) was very light in 1956. Several swarms appeared on the coast line early in January causing very little damage. No further locust swarms appeared until late November and December when several were reported passing through southern desert areas of Libya into Algeria. There was no reportable damage. AN ALFALFA CATERPILLAR was found in many alfalfa fields and light damage resulted. A PEA APHID caused some damage to alfalfa plots early in the summer but disappeared after spraying. DURRA STEM BORER (Sesamia cretica) was found in several fields of corn and grain sorghums. LEAFHOPPERS were observed in several oases in the desert area, as well as some GRASSHOPPERS in alfalfa and sorghum fields.

Olive Insects: The most serious during the year were the scale insects. OLIVE FLY (Dacus oleae) was not a serious pest. A SCALE (Pollinia pollini) increased and was most serious around the Tripoli area. OLIVE SCALE (Parlatoria oleae) was found in most areas where olives are planted but attacks were light. Other olive insects were a BARK BEETLE (Phloeotribus scarabaeiodes) and a BLISTER BEETLE (Zonabris oleae) (found only in northern Cyrenaica Province). A MOTH (Acherontia atropos) caused very little damage. OLIVE THRIPS (Liothrips oleae) not important. OLIVE PSYLLA (Euphyllura olivina) was very light as was the OLEANDER SCALE (Aspidiotus hederae). BLACK SCALE (Saissetia oleae) although serious some years, was light in 1956. The following were noted but were not important on olives: DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi), the SCALES (Getulasphis bupleuri, Philippia oleae) and OLIVE LEAF MITE (Oxypleurites maxwelli).

Citrus Insects: Although serious in most years the MEDITERRANEAN FRUIT FLY (Ceratitis capitata) was unimportant in 1956. The SCALES (Chrysomphalus dictyospermi, Lepidosaphes beckii, and Coccus hesperidium) were severe in local areas only. There were many minor attacks. Other citrus insects observed were CHAFF SCALES (Parlatoria pergandii and P. ziziphus), CITRUS MEALYBUG (Pseudococcus citri) and COTTONY-CUSHION SCALE (Icerya purchasi). A natural parasite of I. purchasi is Rodolia cardinalis which keeps down the infestation.

Other Fruit Insects: The PEACH TWIG BORER (Anarsia lineatella) was a pest of almonds. A few HALL SCALE (Nilotaspis halli) were observed. The CODLING MOTH (Carpocapsa pomonella) was serious only in the Tagiura Oases area. A FIG MOTH (Simaethis nemorana) was most numerous on figs in northern Cyrenaica Province as was a SCALE (Ceroplastes rusci).

Truck Crop Insects: Hornworms, snails and slugs were numerous in the coastal area and northern Cyrenaica Province. Wireworms and grubs were serious on tobacco and watermelons in the Tagiura, Zanzur and Zavia Oases. Nematodes are a very serious problem in the coastal area from the Garabulli Oasis west to the Sabratha Oasis. Nematodes make vegetable raising almost impossible during the hot months of the year: July, Aug. Sept. Mole crickets were a serious pest on peanuts making replanting necessary in several oases. Grasshoppers caused light damage to tobacco plots in local areas. The MELON BEETLE (Epilachna chrysomelina) was serious in several oases. Other insects noted were BEAN APHID (Aphis fabae), IMPORTED CABBAGEWORM (Pieris rapae), BLACK CUTWORM (Agrotis ypsilon), CABBAGE APHID (Brevicoryne brassicae), BEET ARMYWORM (Laphygma exigua), a mole cricket (Gryllotalpa gryllotalpa), POTATO TUBERWORM (Gnorimoschema operculella).

Stored Products Insects: The most serious grain insects, causing severe damage to wheat stores, were the GRANARY WEEVIL, LESSER GRAIN BORER and the RICE WEEVIL. The following insects were found in wheat and barley: Sitophilus granarius, S. oryza, Rhizopertha dominica, Tribolium confusum, T. castaneum, Trogoderma granarium, Oryzaephilus surinamensis, Gnathocerus cornutus, Latheticus oryzae, *Laemophloeus pusillus*, *Tenebroides mauritanicus*, *Plodia interpunctella*, *Sitotroga cerealella*, *Pyralis farinalis*, *Anagasta kuhniella*, and *Attagenus gloriosae*. The last two were found in flour. PEA WEEVIL (*Bruchus pisorum*) and BEAN WEEVIL (*Acanthoscelides obtectus*) were found in legume seeds. DRIED-FRUIT BEETLE (*Carpophilus hemipterus*) caused some damage to stored stocks of dried dates.

Insects Affecting Man and Animals: The Tuorga and Brak Oases are noted for the presence of malaria and the following anopheline mosquitoes have been found: *Anopheles sacharovi*, *A. algeriensis*, *A. multicolor* and *A. coustani tenebrosis*. All houses in these two areas have been sprayed the last 3 years and residents have been treated with malarial suppressants. Biting midges were troublesome in several areas while fleas were quite serious in the coastal area. Flies were uncountable in certain areas. Several areas were sprayed this last year which controlled flies to a remarkable extent in the sprayed area. Mosquitoes (*Culex* species) were a problem in several oases. Cockroaches were found in most houses in the cities having plumbing facilities. Scorpions were found in some areas especially the inhabited caves. Clothes moth caused some damage to wool rugs. The usual lice, fleas, flies, and ticks were found on sheep, goats, camels, and donkeys.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

RICE STEM BORER or PADDY BORER (Schoenobius incertulas (Walk.))

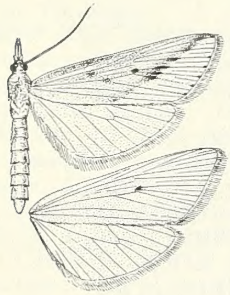
Economic Importance: The species infests rice throughout the tropical regions of Asia. For years, this pyralid has been the most serious pest of rice in China. Severe outbreaks occurred in 1917, 1929 and 1935. Damage in some years in southern India was estimated as high as 65 percent of the rice crop. Dead hearts or white heads are characteristic signs of injury. In 1955 the rice stem borer destroyed 15 percent of the rice crop at Gujranwalla in the Punjab and reduced the average rice yield from 656 to 329 pounds per acre at Umerkot, Sind.

Distribution: Burma, Ceylon, China, Formosa, India, Indochina, Indonesia, Japan, Malaya, Okinawa, Pakistan, Philippines, Thailand.

Hosts: Rice and other species of the genus Oryza. There have been reports of S. incertulas attacking grasses such as sugarcane and corn in southwestern Asia and wheat in Burma.

Life History and Habits: In parts of China there are 4-5 overlapping generations a year. Eggs, laid in clusters of about 70 on the upper surface of leaves, hatch in 3-18 days. The majority of the larvae bore through the leaf sheath, but some settle on the leaf blade and feed on the leaf tissues. A few bore into the midrib of the leaf sheath. Larvae usually remain near the root to feed and as a result the tissues near this part of the plant are destroyed. The rolled-up leaf is often so injured that it is easily broken off at point of attack. In order to seek a new host, some larvae suspend themselves by a silken thread and may be blown by the wind or float on the surface of the water. Under favorable summer conditions the larval stage lasts 23-37 days, the pupal stage 8-9 days. Overwintering larvae are found in cocoons in rice stubble or just below the ground surface.

Description: Adult male: 18-23 mm. expanse. Forewing dull brownish yellow with a sprinkling of darker scales; a small black spot at lower angle of cell; an indistinct oblique fuscous line from apex toward hind margin and a marginal series of minute dark spots on the veins. Hind wing yellowish white. Adult female: 24-36 mm. expanse. Forewing pale straw yellow, with a slight sheen and without markings except for a conspicuous dark spot at lower angle of cell. Hind wing white, often with yellowish suffusion toward outer margin. Mature larva: 20-25 mm. long. Head and thorax pale amber, head coloration somewhat reticulate. Body slender, creamy white; setae inconspicuous except under magnification; spiracles very narrow, slitlike; with 3 pairs of thoracic legs; 4 pairs of abdominal and 1 pair of anal prolegs present, abdominal and anal prolegs short; crochets on abdominal prolegs uniordinal and in a complete circle, on anal legs irregularly biordinal and in a transverse mesoseries.



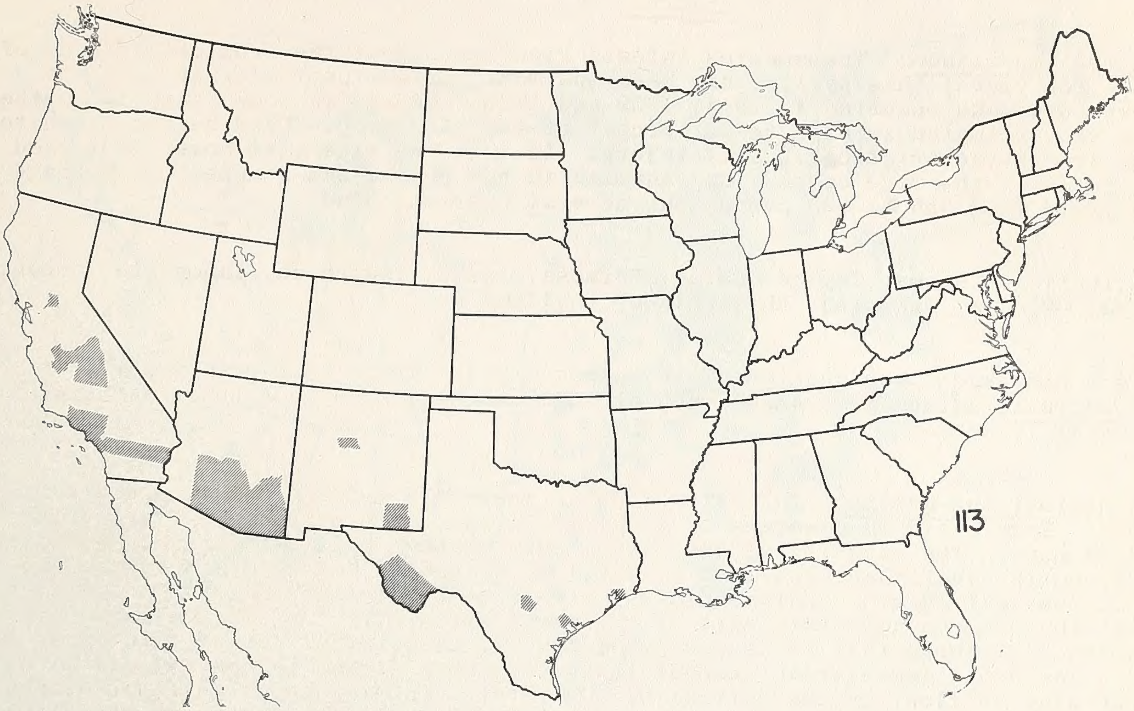
Adults Enlarged
Male Above, Female Below

(Prepared in Plant Pest Survey Section in cooperation with other ARS agencies). CEIR 7 (14) 4-5-57

Figures from Iconographia Insectorum Japonicorum, 2nd edit., 1954.Tokyo,1736 pp.

DISTRIBUTION OF RANGE GRASSHOPPERS

Schistocerca vaga (Scudder)



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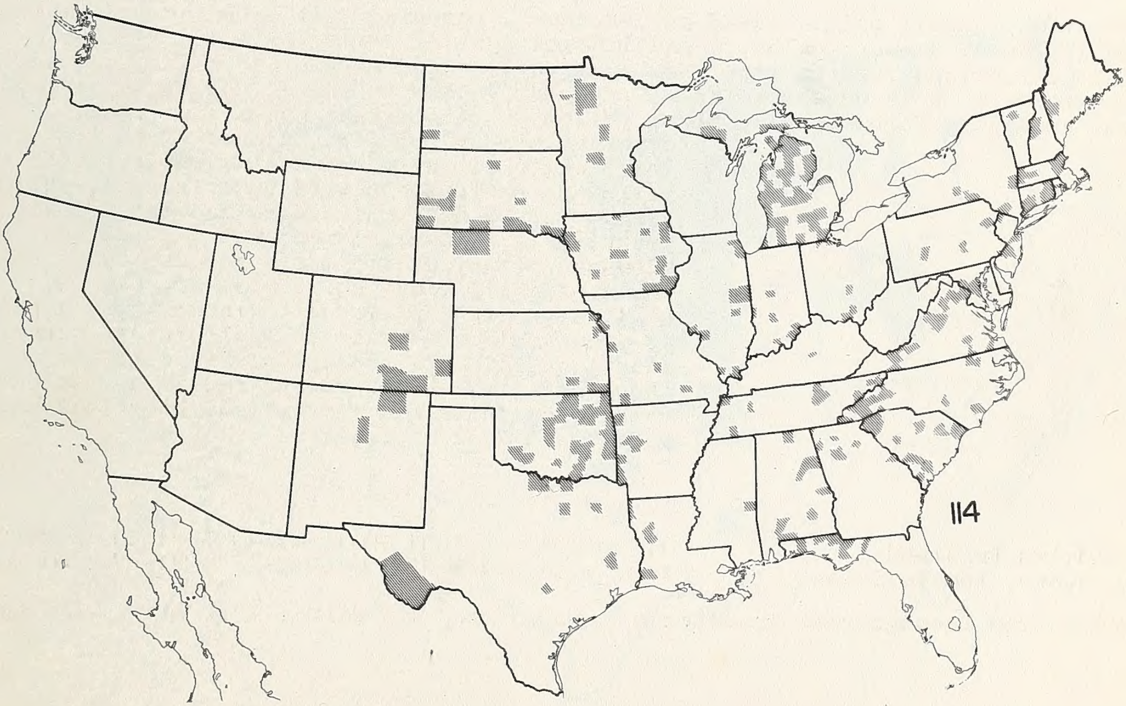
Spharagemon bolli Scudder



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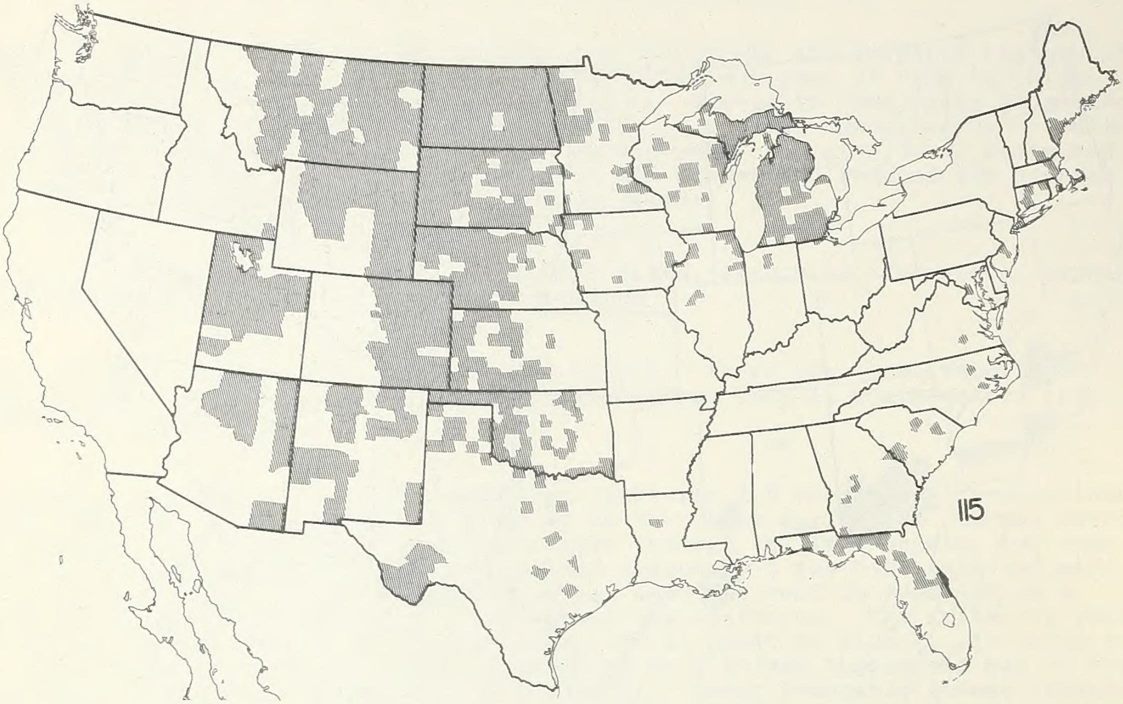
DISTRIBUTION OF RANGE GRASSHOPPERS

Spharagemon collare (Scudder)



Spharagemon equale (Say)